From:	Aram Varjabedian
To:	Turin, David; david.burns (david.burns@state.ma.us); Joyce, Ryan (FWE)
Cc:	John Struzziery; Robert Scott; Bill Boornazian; bkiely
Subject:	RE: Hull, MA WPCF - MA0101231 - Permit exceedence - Fecal Coliform & Enterococci [6/24/20]
Date:	Friday, June 26, 2020 1:51:12 PM
Attachments:	image003.png

Good afternoon:
Unfortunately, I am emailing you all to inform you that the Hull WPCF had a maximum daily exceedance for the effluent fecal coliform and enterococci samples that were collected on Tuesday June 24, 2020. We were informed of the results from our contract lab G&L Labs, mid-day on Thursday 6/25. Based upon the results, we made some adjustments – increased chlorine dose, redirected the sodium bisufite system dilution water, and resampled late in the day. Also, we began evaluating plant flows, CCT basin detention times, and CCT tank conditions yesterday. We collected another set of samples today, since yesterday's results will not be known until late this afternoon.
Max daily fecal coliform limit – 260 CFU / 100ml; Result for 6/24/20 – 2000 CFU / 100ml
Max daily fecal coliform limit – 276 CFU / 100ml; Result for 6/24/20 – 290 CFU / 100ml
The sampling for fecal coliform and enterococci was done at the same time and the sample for fecal coliform and enterococci is collected in separate sterile 120mL specimen containers from the chlorine contact chamber channel on 6/24/20. The sampling procedure and location were the same, as has been for prior samples collected. The chlorine residual at the time of sample collection was 1.81 mg/L and was maintained well prior to sampling. There were no issues with the disinfection system or flows prior to sample collection. The effluent flow at the time of collection was approximately 1.0 MGD.
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As noted in the previous permit exceedences, the effluent pumps pump from the effluent wet well up to the chlorine contact tanks [CCT] and the pumping rate is based upon flows into the plant and the wet well level. Sodium hypochlorite is added into the effluent wet well before the effluent is pumped up to the CCT's. Both CCT's are currently on line. These tanks were last pumped out and cleaned in mid to late April. We are planning to clean out these tanks again, based upon the latest bacteria results. Plant flows have been extremely low, due to recent work in the collection system and the dry weather spell. This has resulted in the cycling on and off of the smallest effluent pump, which is leading to a more periods where there is no flow to the CCT basins. The effluent pump can remain off for as long as 30-45 minutes before restarting. We suspect that during the periods of little or no flow, anoxic conditions in the CCT's, along with some solids on the tank floor may be causing for some release of particles or solids that may contain bacteria, even though the chlorine residual indicates good. The Hull CCT's are very deep and contain a number of baffle walls in the channels of each tank that could harbor bacteria that might become dislodged when the pumps resume pumping effluent up to the CCT's. The samples collected over the past 4-6 weeks have been compliant. We also believe that the time for sample collection may be an issue, if the collection time follows a period where the effluent flow had just restarted. The samples are always collected when there is effluent flow leaving the CCT's. We plan to look at this collection time more closely to ensure representative conditions and sampling. Today, we are closing off one of the CCT's to increase the flow through the remaining CCT, and monitoring the chlorine residual before and after sodium bisulfite addition.
Recently [2 weeks ago] the facility had an aeration system failure in tank #1, where an aeration diffuser distributor broke apart in tank #1, as noted in the recent notification report. The process tank arrangement required a change, and one of the mechanically aerated tanks was put into service. In the subsequent days, we have been working to lower the system biomass concentration in order to maintain sufficient dissolved oxygen levels in the aeration tanks. We have experienced extended periods of time where the system DO's have been very low. Effluent TSS has been compliant but higher than previous weeks, and we are waiting for the effluent BOD data for the sample collected last week. Our daily process tracking of effluent turbidity has shown higher levels than before the aeration system issue.
I will provide updates, as the effluent data becomes available.

Should you have any questions or need additional information, please let me know.
Sincerely,
Aram

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